

Claims

1. Inductive coupling circuit for information transmission in electric energy distribution grids which is located within the transmission path and which comprises:

- an inductive coupling device (AE) comprising a ring (R), which encloses the shielded power cable (K), and a coil (SP) inductively coupled to the ring (R) and connected to a transceiver unit (SE), wherein the current of the superposed information signal in the conductor of the power cable (K) flows through the plane defined by the inductive coupling device (AE), and
- an earth wire (A1) subsequently connected to the inductive coupling device (AE), located ahead of the defined plane and connected to the shield (S) and earth (E) or to a potential compensation,

wherein no net current flows in the shield (S) as there is no other conductive connection from one side of the plane, defined for inductive coupling, to the other side, other than through the plane itself, and wherein, during transmission, the current of the information signal is directly induced into the conductor and during reception only the current within the conductor is evaluated.

2. Inductive coupling circuit for information transmission in electric energy distribution grids which is located within the transmission path and which comprises:

- an inductive coupling device (AE) comprising a ring (R), which encloses the shielded power cable (K), and a coil (SP) inductively coupled with the ring (R) and connected to a transceiver unit (SE), and
- an earth wire (A) connected to the shield (S) and earth (E) or to a potential compensation, which is lead back through the ring core (R),

wherein the current of the superposed information signal in the conductor of the power cable (K), the return current and/or induced interference signals on the shield (S) as well as the identical return current and/or induced interference signals flow through the plane defined by the inductive coupling device (AE) in opposite directions; wherein the magnetic field of the two last currents is compensated; and wherein the inductive coupling device (AE) induces the current directly into the conductor when transmitting and only evaluates the current in the conductor when receiving.

3. Inductive coupling circuit according to claim 1 or 2, characterized in that the inductive coupling device (AE) is located in a transformer station and that the ring (R) is a ring core or a plastic ring with a wrapped coil.
4. Inductive coupling circuit according to claim 1 or 2, characterized in that all inductive coupling devices (AE) are linked to the same phase in a transmission path having several underground cables.

5. Inductive coupling circuit according to claim 1 or 2, characterized in that the inductive coupling device (AE) is linked to all phases.
6. Inductive coupling circuit according to claim 1 or 2, characterized in that the inductive coupling device (AE) is linked to the incoming line of the transformer (T).
7. Method for information transmission in electric energy distribution grids with shielded power cables (K) and with an inductive coupling circuit linked thereto, characterized in that the inductive de-/coupling of the information signal through a plane defined by an inductive coupling device (AE) of the coupling circuit is performed in such a manner that no net current flows in the shield (S), wherein there is no other conductive connection from one side of the plane defined for the inductive coupling to the other side other than the connection through the plane itself, wherein, during transmission, the current of the information signal is directly induced into the conductor and during reception only the current within the conductor is evaluated.
8. Method for information transmission in electric energy distribution grids with shielded power cables (K) and with an inductive coupling circuit linked to it, characterized in that the inductive de-/coupling of the information signal is performed in such a manner that the current of the superposed information signal in the conductor of the power cable (K), the return current and/or induced interference signals on the shield (S) as well as the identical return current and/or induced interference signals flow, in opposite directions,

through the plane set up by an inductive coupling device (AE) of the coupling circuit, wherein the magnetic field of the two last named currents is compensated and wherein the inductive coupling device (AE) induces the current directly into the conductor when transmitting and only evaluates the current in the conductor when receiving.